

TEST REPORT

Applicant: Shenzhen Boyi Innovation Technology Co., Ltd
Address: North, 5 / F, Building 3, Tea West, Zone A, Huafeng First Science Park, Hangcheng Street, Baoan District, Shenzhen
Equipment Type: BYKC68MS-AK
Model Name: BYKC-FRS8X-VER1.2
Brand Name: Boyi scientific and technological innovation
Test Standard: IEEE Std 149-2021
Sample Arrival Date: May 08, 2024
Test Date: May 08, 2024
Date of Issue: May 09, 2024

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.



Tested by: Mai Jintian

Checked by: Xia Long

Approved by: Tolan Tu
(Testing Director)

Mai Jintian

Xia Long

Tolan Tu

| Revision History | | |
|-------------------------|---------------------|----------------------|
| Version | Issue Date | Revisions |
| <u>Rev. 01</u> | <u>May 09, 2024</u> | <u>Initial Issue</u> |

TABLE OF CONTENTS

| | | |
|---------|--|----|
| 1 | GENERAL INFORMATION | 3 |
| 1.1 | Test Laboratory | 3 |
| 1.2 | Test Location..... | 3 |
| 2 | PRODUCT INFORMATION..... | 4 |
| 2.1 | Applicant Information | 4 |
| 2.2 | Manufacturer Information | 4 |
| 2.3 | General Description for Equipment under Test (EUT) | 4 |
| 2.4 | Ancillary Equipment | 4 |
| 2.5 | Technical Information..... | 4 |
| 3 | SUMMARY OF TEST RESULTS..... | 5 |
| 3.1 | Test Standards..... | 5 |
| 3.2 | Test Verdict | 5 |
| 3.3 | Test Uncertainty | 5 |
| 4 | GENERAL TEST CONFIGURATIONS..... | 6 |
| 4.1 | Test Condition | 6 |
| 4.2 | Test Equipment List | 6 |
| 4.3 | Test Setup..... | 7 |
| 4.4 | Test Frequencies | 7 |
| ANNEX A | TEST RESULTS..... | 8 |
| A.1 | Gain and Efficiency | 8 |
| ANNEX B | RADIATION PATTERN..... | 9 |
| ANNEX C | TEST SETUP PHOTO | 12 |
| ANNEX D | EUT PHOTO | 13 |

1 GENERAL INFORMATION

1.1 Test Laboratory

| | |
|--------------|--|
| Name | Shenzhen BALUN Technology Co., Ltd. |
| Address | Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China |
| Phone Number | +86 755 6685 0100 |

1.2 Test Location

| | |
|----------|---|
| Name | Shenzhen BALUN Technology Co., Ltd. |
| Location | <input checked="" type="checkbox"/> Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China |
| | <input type="checkbox"/> 1/F, Building B, Ganghongji High-tech Intelligent Industrial Park, No. 1008, Songbai Road, Yangguang Community, Xili Sub-district, Nanshan District, Shenzhen, Guangdong Province, P. R. China |

2 PRODUCT INFORMATION

2.1 Applicant Information

| | |
|------------------|--|
| Applicant | Shenzhen Boyi Innovation Technology Co., Ltd |
| Address | North, 5 / F, Building 3, Tea West, Zone A, Huafeng First Science Park, Hangcheng Street, Baoan District, Shenzhen |
| Contact Person | Wang Weiyuan |
| Telephone Number | 18675575732 |
| E-mail Address | saparkwang2008@126.com |

2.2 Manufacturer Information

| | |
|--------------|--|
| Manufacturer | Shenzhen Boyi Innovation Technology Co., Ltd |
| Address | North, 5 / F, Building 3, Tea West, Zone A, Huafeng First Science Park, Hangcheng Street, Baoan District, Shenzhen |

2.3 General Description for Equipment under Test (EUT)

| | |
|-----------------------|-------------------|
| EUT Name | BYKC68MS-AK |
| Model Name Under Test | BYKC-FRS8X-VER1.2 |
| Antenna Type | PCB Antenna |
| Dimensions | 19.0*3.5 mm |

2.4 Ancillary Equipment

Note: Not applicable.

2.5 Technical Information

| | |
|-----------------|-------------------|
| Frequency Range | 2402MHz ~ 2480MHz |
|-----------------|-------------------|

3 SUMMARY OF TEST RESULTS

3.1 Test Standards

| No. | Identity | Document Title |
|-----|-------------------|--|
| 1 | IEEE Std 149-2021 | IEEE Standard Test Procedures for Antennas |

3.2 Test Verdict

| Report Section | Description | Remark |
|----------------|---------------------|--------|
| ANNEX A.1 | Gain and Efficiency | -- |
| ANNEX B | Radiation Pattern | -- |

3.3 Test Uncertainty

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO.

| Item | Uncertainty |
|-----------|---------------------|
| VSWR(S11) | ± 0.61 |
| Gain | $\pm 1.92\text{dB}$ |

4 GENERAL TEST CONFIGURATIONS

4.1 Test Condition

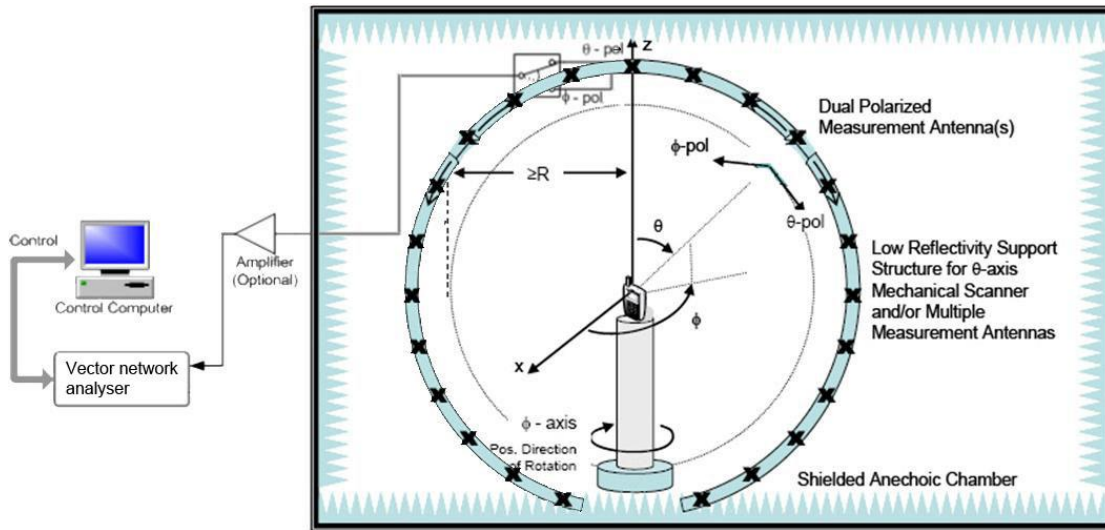
| Environment Parameter | Selected Values During Tests | | | |
|---|------------------------------|------------------|---------|-----------------------|
| | Ambient Pressure (KPa) | Temperature (°C) | Voltage | Relative Humidity (%) |
| Normal Temperature, Normal Voltage (NTNV) | 101 | 21.5 | N/A | 43 |

4.2 Test Equipment List

| Description | Manufacturer | Model | Serial No. | Cal. Date | Cal. Due |
|---|--------------|--------|--------------|------------|------------|
| SG24 Multi-probe Antenna Measurement System | SATIMO | SG24-L | 1101855-0001 | 2021.11.12 | 2024.11.11 |
| Vector Network Analyzer | Agilent | E5071B | MY42404001 | 2024.01.16 | 2025.01.15 |
| Description | Manufacturer | Name | | Version | |
| Test Software | MVG | SPM | | V 1.8 | |

4.3 Test Setup

4.3.1 Antenna gain, efficiency and radiation pattern test setup



4.4 Test Frequencies

| | |
|------------------|---------------------------|
| Test Frequencies | 2402MHz, 2440MHz, 2480MHz |
|------------------|---------------------------|

ANNEX A TEST RESULTS

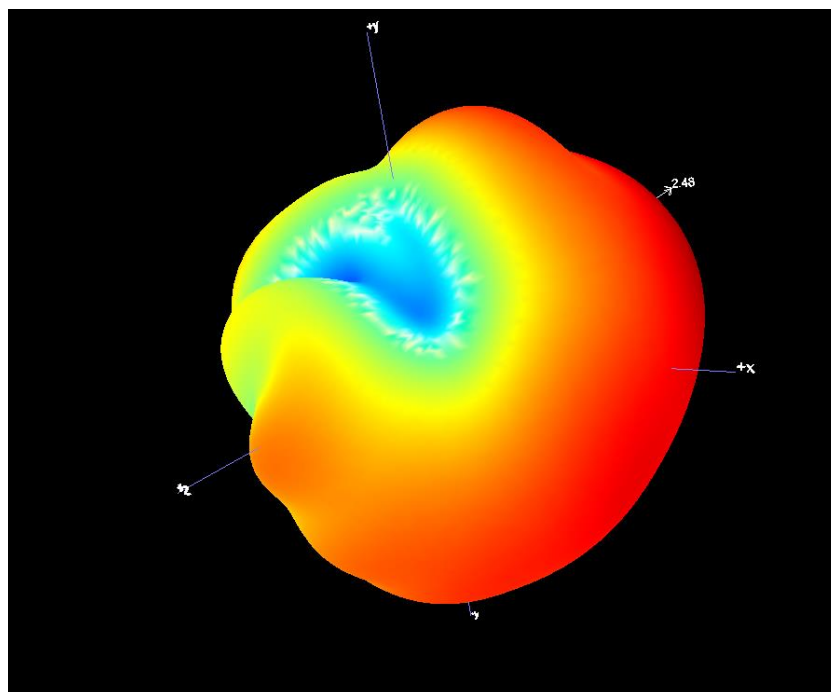
A.1 Gain and Efficiency

| Frequency | Gain (dBi) | Efficiency (%) |
|-----------|-------------|----------------|
| 2402MHz | 2.48 | 41 |
| 2440MHz | 2.31 | 38 |
| 2480MHz | 1.55 | 36 |

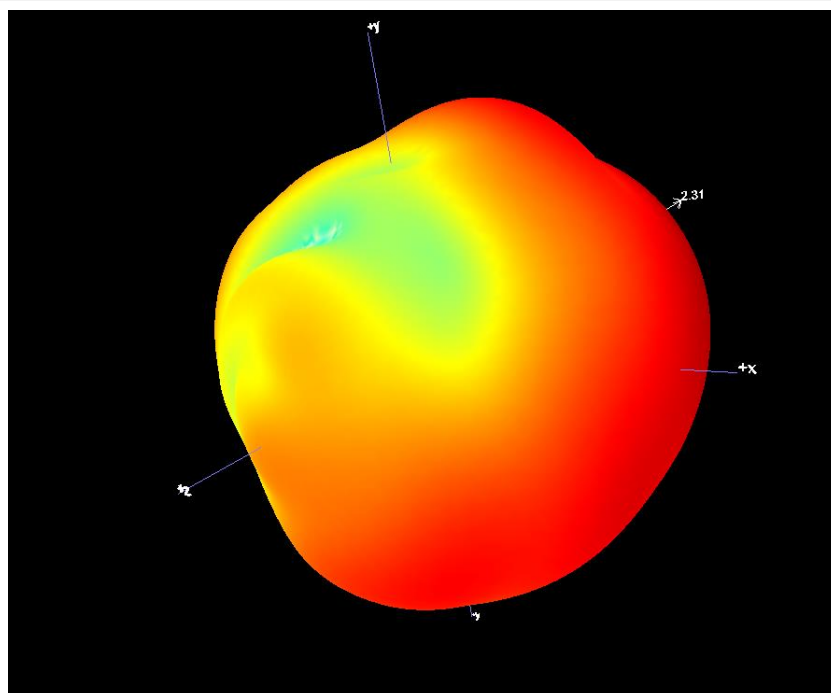
ANNEX B RADIATION PATTERN

B.1 3D Pattern unit:dBi

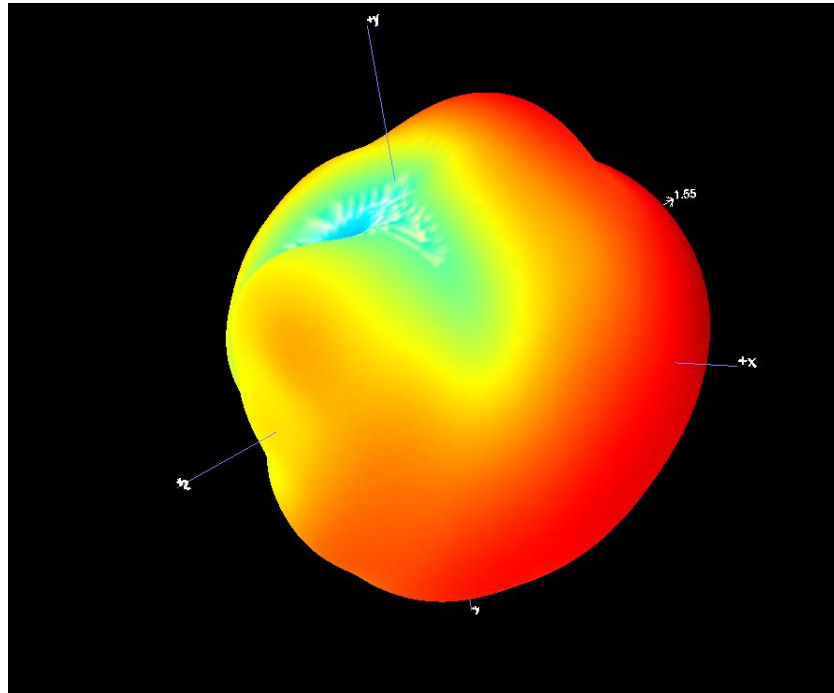
B1.1 3D Pattern for 2402MHz



B1.2 3D Pattern for 2440MHz



B1.3 3D Pattern for 2480MHz

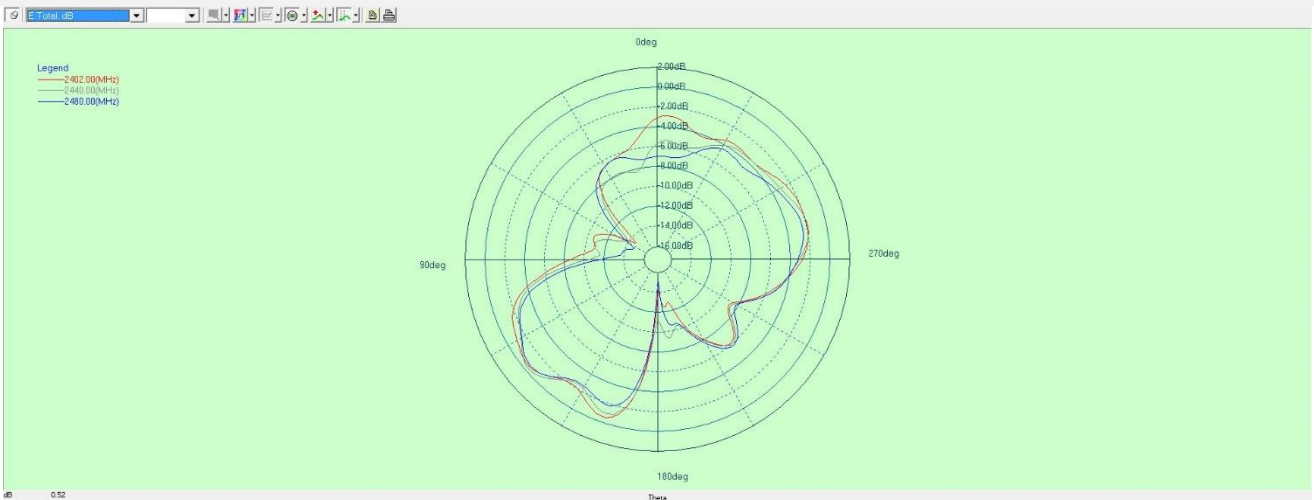


B.2 1D Radiation Pattern

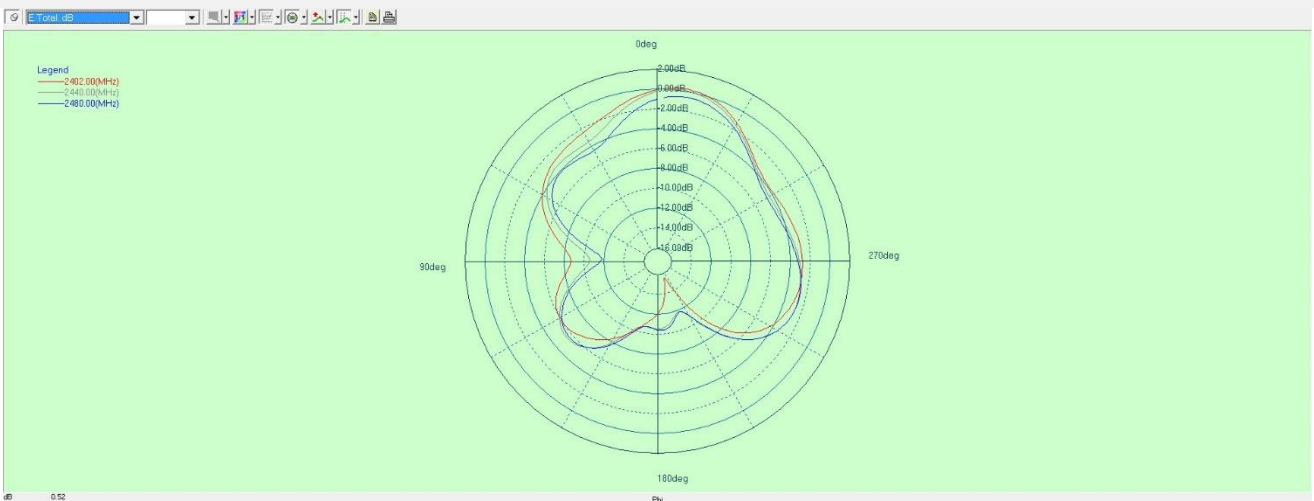
B2.1 PHI=0



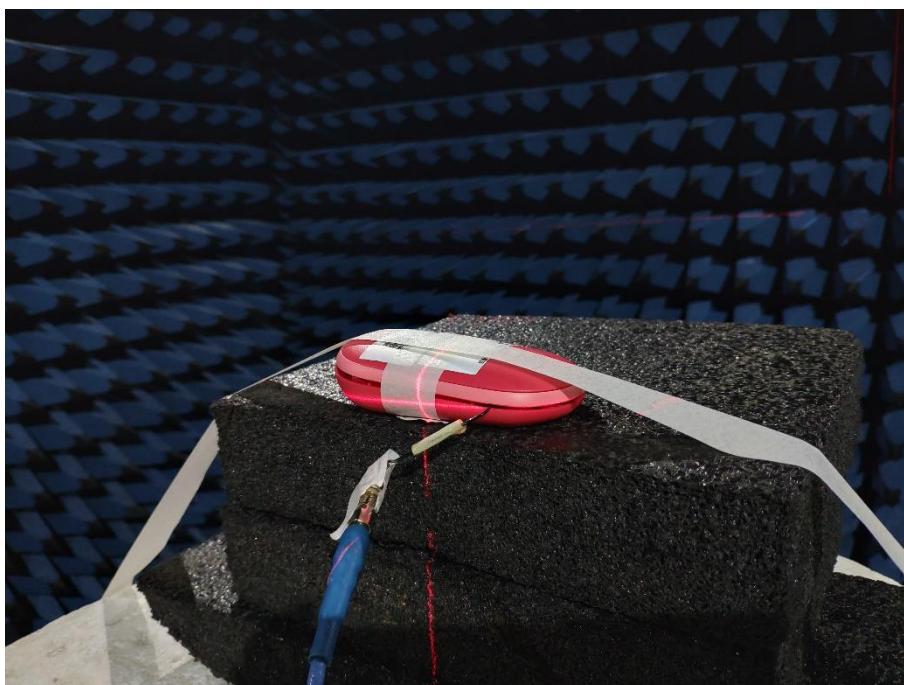
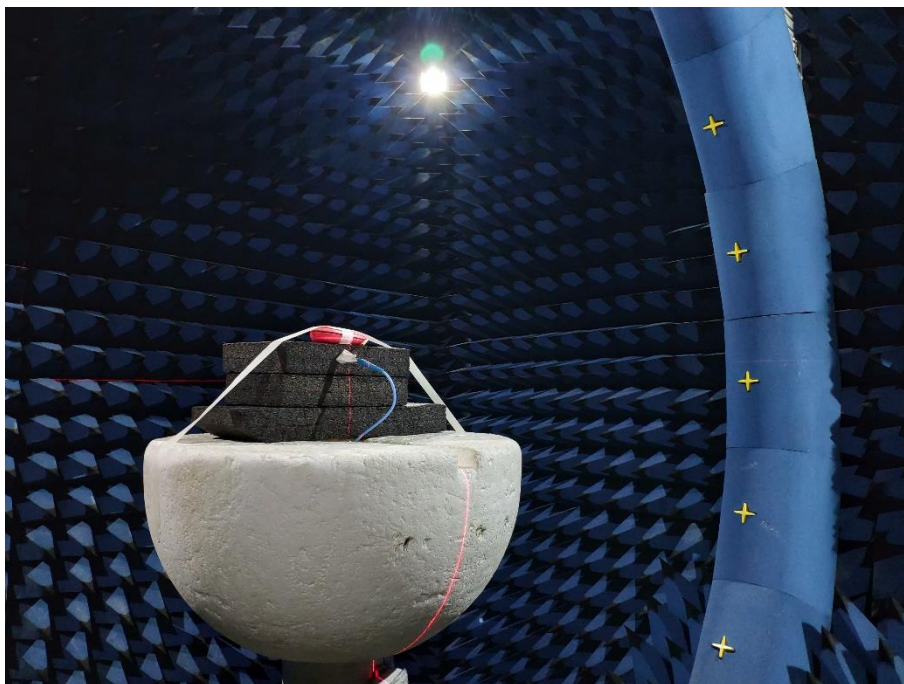
B2.2 PHI=90



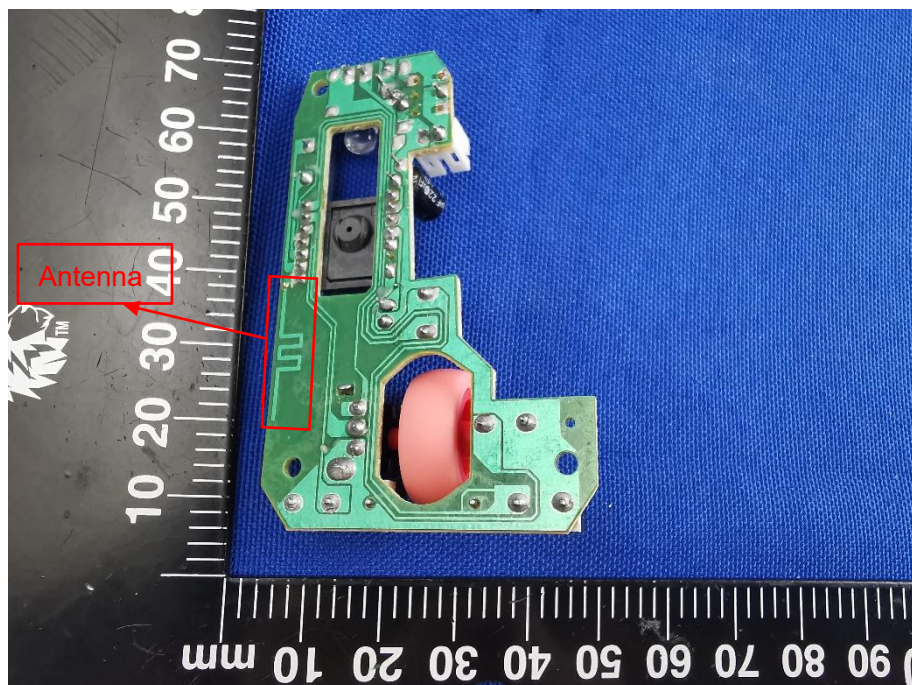
B2.3 THETA=90



ANNEX C TEST SETUP PHOTO



ANNEX D EUT PHOTO



Statement

1. The laboratory guarantees the scientificity, accuracy and impartiality of the test, and is responsible for all the information in the report, except the information provided by the customer. The customer is responsible for the impact of the information provided on the validity of the results.
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--END OF REPORT--